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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,153	03/16/2001	Christian Marzolin	200741US6PCT	7028
22850 7590 01/22/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER TORRES VELAZQUEZ, NORCA LIZ	
			ART UNIT	PAPER NUMBER
			1771	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/22/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/719,153

Applicant(s)

MARZOLIN ET AL.

Examiner

Norca L. Torres-Velazquez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-18, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-18, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on December 29, 2006 has been entered.

Response to Amendment

2. Claims 1-11, 13-18 and 20-21 are pending. Applicants have amended independent claims 1 and 13 to compare the coating thickness to the mean size of particles of the at least partly crystallized titanium oxide in anatase form. The term - - crystallites - - has been substituted for the term particles. Applicants refer to the specification at page 14, lines 11-12; page 14, lines 35-36; and page 15, lines 23-24 to provide support for the amendment. Applicants further indicate that the amendments are in line with the Examiner's answer of February 1, 2006 page 4.

The Examiner has reviewed the Specification and has come to the conclusions presented below with regards the amended claims.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. Claims 1 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. Claims 1 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Specification provides support for the use of a photocatalytic coating applied to the fibrous material so that at least a portion of the “fibers” is sheathed with the coating over a thickness of at least 5 nm, in particular over a thickness of the order of 30 to 50 nm. The Specification further discloses that the preferred thickness takes into account the most commonly encountered mean size of the anatase TiO₂ crystallites. [Refer to page 10, lines 9-21] In Example 2 of the Specification, anatase crystallized TiO₂ particles with a mean diameter of 30 nm are used. [Refer to page 14, lines 35-36] Then Example 3 uses TiO₂ particles with a mean diameter of approximately 45 nm. [Refer to page 15, lines 23-24]

It is the Examiner’s position that the Specification fails to establish any direct relationship between the mean diameter of the TiO₂ particles and the thickness of the coating. The coating solution includes several components, for example, the coating solution of Example 2 uses a coating composition that includes several components and only 1% of anatase crystallized TiO₂ particles. That is not enabling the claims as presently claimed since the

Specification is not providing the comparison aimed by Applicants in the claims. The size relationship of the coating to the particles is not enabled by, nor evident from, the original Specification.

Claims 2-11, 13-18 and 20-21 are rejected as being dependent of rejected claims 1 and 13.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-11, 13-18 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOPIN et al. (US 6,037,289) in view of OGATA (US 6,113,861).

CHOPIN et al. relates to a substrate provided, on at least a portion of one of its faces, with a coating with a photocatalytic property based on titanium dioxide which is at least partially crystalline and which is incorporated in the coating partly in the form of particles predominantly crystallized in the anatase form. (Abstract; Col. 2, lines 47-55; Claims 1-3, 11-12) The crystalline titanium dioxide particles incorporated in the coating exhibit a mean size of between 5 and 80 nm and are preferably incorporated in the coating using a binder. (Col. 3, lines 3-10) The binder can be inorganic or organic. (Refer to Col. 3, lines 10-11 and 23-24) The thickness of the coating of the substrate is variable. It is generally between 5 nm and 1 micron, more preferably between 10 nm and 80 nm. The reference teaches that the thickness can depend on various parameters such as the envisaged application of the substrate or alternatively on the size

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of the titanium dioxide particles in the coating. (Refer to Col. 5, lines 1-15) In Example 3 (Col. 16), the reference used particles with a size of 45 nm and after treatment it produced a titanium dioxide layer with a thickness of approximately 90 nm. (Col. 16-17) The reference teaches the use of architectural materials as the substrate. (Col. 5, lines 16-19)

CHOPIN et al. fails to teach that the substrate is fibrous.

OGATA discloses a photocatalytic sheet that uses a fiber, a filament, a yarn, a ribbon, a knitted fabric, a woven fabric, a nonwoven fabric, or a film as the base and a photocatalytic semiconductor layer. (Abstract) The reference teaches the use of titanium oxide of anatase type in a sol solution. (Col. 4, lines 13-16) The TiO_2 constituting the powder or sol has a very small particle diameter of 7 to 20 nm. (Col. 5, lines 29-30)

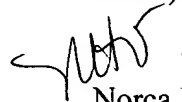
Since both references are directed to photocatalytic coated materials, the purpose disclosed by OGATA would have been recognized in the pertinent art of CHOPIN et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the coating taught by CHOPIN et al. in fibrous substrate such as those disclosed by OGATA motivated by the desire of providing flexible materials with protection to ultraviolet radiation as taught by OGATA (Refer to Col. 1, lines 20-32)

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-5:00 pm and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Norca L. Torres-Velazquez
Primary Examiner
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January 10, 2007